



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/447,256 | 11/23/1999 | NOBUYOSHI NAKAJIMA | 2091-0205P | 3582 |

7590 11/17/2005

BIRCH STEWART KOLASCH & BIRCH LLP
P O BOX 747
FALLS CHURCH, VA 220400747

EXAMINER

LAROSE, COLIN M

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/447,256 | NAKAJIMA, NOBUYOSHI |
| | Examiner | Art Unit |
| | Colin M. LaRose | 2627 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 July 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 July 2005 has been entered.

Response to Arguments

2. Applicant has amended claims 1, 3, and 5 to denote that the image signals are “laid out side by side.” Examiner agrees with Applicant’s assertions that this limitation distinguishes from the Horii reference, since Horii teaches only overlaying, or superposing, the images. Therefore, the previous rejections of claims 1, 3, and 5 have been withdrawn.

However, new grounds of rejection have been established for claims 1, 3, and 5, and their corresponding dependent claims below.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 3, 5, 8, 10, and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over and U.S. Patent 5,109,281 by Kobori et al. (“Kobori”) and U.S. Patent 6,049,674 by Yamamoto et al. (“Yamamoto”).

Regarding claim 1, Kobori discloses an image processing method (figure 3) for obtaining a layout image signal representing a layout image, in which a plurality of person images are laid out, from a plurality of original image signals, each of the original image signals representing a person image, in which a face pattern of a person is embedded, the method comprising the steps of:

i) detecting face information from each of the original image signals, said face information representing a position of the face pattern of the person in the person image represented by each original image signal;

[In figure 3, a camera is set to image the left of two face images ("c-1", figure 2). The left face image signal is stored in memory, and the position of the face is detected (column 4, lines 50-51). This process is also repeated for the right face image.]

iii) performing a face pattern normalizing process on each of the original image signals based on said detected face information, a plurality of normalized image signals being obtained from said face pattern normalizing process;

[After the position of the left face image signal is detected, it is determined whether the positioning of the object is satisfactory, and based on the determination that the positioning is unsatisfactory, the imaging conditions are adjusted, and the adjusted image signal is stored (column 4, lines 53-57). This process repeats until the face is centered in the image. In other words, in accordance with the detected positioning information, the face image signal is continually adjusted until it becomes normalized (i.e. centered) in the image. This normalizing process is also repeated for the right face image signal.]

iv) laying out a plurality of images, which are represented by said normalized image signals, in a predetermined layout such that the plurality of image signals are laid out side by side, and obtaining the layout image signal representing the thus formed layout image (see e.g. figure 8: image signal with normalized faces side by side).

Kobori is silent to performing a pattern matching process, as claimed, to calculate an amount of displacement or size difference from a normalized value, and then using the displacement or difference for normalizing the face. Instead, Kobori relies on trial and error for normalizing the face. The position of the face is checked and repeatedly adjusted until it is satisfactory (figure 3).

Yamamoto discloses a system (e.g. figure 17) similar to that of Kobori wherein facial images are obtained and normalized for the purposes of printing. In Yamamoto's system, a user sits in front of a camera in the same manner as in Kobori's system. The system captures an image of the user's face and detects the contour of the face (column 9, lines 39-40). A pattern matching process is then carried out whereby the detected contour is compared to a reference contour to determine the amount of displacement therefrom (column 9, lines 40-41). Based on the results of the comparison, an optimum magnification is produced and used to normalize the face to a predetermined size (column 9, lines 41-50), thereby producing an image of a normalized face.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kobori by Yamamoto to perform a automatic facial detection, pattern matching, and normalization to generate normalized facial images, as claimed, since both Kobori and Yamamoto are directed to video printing systems that produce normalized faces for printing

purposes, and Yamamoto teaches that the detection, pattern matching, and normalization are conventionally implemented automatically. Therefore, Yamamoto's processes for normalizing the face do not rely on trial and error as in Kobori's system.

Regarding claims 3 and 5, the combination of Kobori and Yamamoto discloses the corresponding apparatus and computer-readable recording medium to perform the above steps (see e.g. figure 1 of Kobori and figure 17 of Yamamoto).

Regarding claims 8, 10, and 12, Yamamoto discloses utilizing only a face contour, as claimed (see column 9, lines 39-40).

Regarding claims 13, 15, and 17, Kobori teaches normalizing each of the person images to the same size (see e.g. figure 8 wherein the faces are substantially the same size).

Regarding claims 14, 16, and 18, Kobori discloses the laid out person images correspond to original images signals and the normalized images are based solely on the corresponding original images signals (i.e. each of Kobori's person images are processed separately so that there is direct correspondence to the laid out images and normalized images).

5. Claims 2, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over and U.S. Patent 5,109,281 by Kobori et al. ("Kobori") and U.S. Patent 6,049,674 by Yamamoto et al. ("Yamamoto"), and further in view of U.S. Patent 5,850,463 by Horii.

Regarding claims 2, 4, and 6, Yamamoto teaches that the normalization is carried out by e.g. enlarging or reducing the face to be in accordance with a stored reference face (column 9, lines 45-50). However, Yamamoto is silent to performing the face pattern normalization by utilizing an affine transformation.

Horii discloses a method for processing facial images. In particular, Horii teaches that it is conventional to utilize an affine transformation in order to match and normalize a detected face with a standard face (column 10, lines 37-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kobori and Yamamoto by Horii to utilize an affine transformation for the normalizing process, since Horii teaches that normalization of a face is advantageously carried out by an affine transformation, which is more versatile than simple enlargement and reduction in that it allows a face to be rotated and translated, in addition to enlarged or reduced.

6. Claims 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over and U.S. Patent 5,109,281 by Kobori et al. ("Kobori") and U.S. Patent 6,049,674 by Yamamoto et al. ("Yamamoto"), and further in view of U.S. Patent 5,278,921 by Nakamura et al. ("Nakamura").

Regarding claims 7, 9, and 11, Yamamoto does not expressly state that the face candidate region is detected in accordance with hue and saturation, however, at the time the invention was made, face candidate regions were conventionally detected from images represented by hue, saturation, and lightness parameters, and it would have been obvious to those skilled in the art to detect facial regions according to saturation and hue since Nakamura shows that such a process was widely known in the art. See e.g. figure 2 of Nakamura.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If

Art Unit: 2627

attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML
Group Art Unit 2627
14 November 2005

JINGGE WU
PRIMARY EXAMINER